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ABSTRACT

The results of the mathematics training needs assessment for grades K through 12 teachers in the Great Falls Public School of Montana are contained in this report. This was conducted as one part of a statewide mathematics and science needs assessment. Teacher demographics, experience levels, and educational background are reported. Mathematics instruction was evaluated in the following areas: (1) amount of time spent on mathematics (elementary); (2) calculator use (elementary and secondary); (3) teacher self-evaluation (elementary and secondary); (4) topic priorities; and (5) use of computers. (JM)

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GREAT FALLS
PUBLIC SCHOOLS
Great Falls, Montana

1985
MATH STAFF DEVELOPMENT NEEDS ASSESSMENT LOCAL RESULTS

COMPILED BY
JANET THOMSON

SE 046 803

ABSTRACT

Great Falls Public Schools participated in the Montana State Math/Science Needs Assessment as required by P.L. 98-377, in order to be eligible for Title II training monies. This report contains the results of math training needs for teachers, K-12. Elementary teachers rated problem solving and computation as first and second choices for staff development. Secondary teachers chose the development of thinking skills and the improvement of attitudes toward math for staff development. The Title II staff development money received will be spent to train teachers in these areas.

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NCTM Position Paper on Professional Development

Districts Not Participating in the Needs Assessment

STATE MATH/SCIENCE STAFF DEVELOPMENT
NEEDS ASSESSMENT

TITLE II, P.L. 98-377

In 1984, congress authorized $100 million for math and science education, to be allocated to all states for teacher training.

Montana's share, $450,000.00, includes $315,000.00 for elementary and secondary local school districts and $135,000.00 for higher education programs.

The elementary and secondary school program allocation will be divided as follows: $220,000.00 to schools for inservice and staff development; about $64,000.00 for demonstration programs involving exemplary projects in math and science; and $31,000.00 to the state education agency for technical assistance and/or information dissemination on exemplary math and science programs, administration of the entire program and a statewide needs assessment.

Part of the $220,000.00 for local school districts will be allocated on the same basis as Chapter 2 block grants--that is, a per-student amount will be determined, and a district will receive an allocation based on the number of students times the per-student dollar figure. Another portion of that amount will be distributed on the same basis as Chapter 1 formula dollars.

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Only those districts completing the state math/science needs assessment in spring, 1985, will be permitted to apply for grants or receive assistance from the funding. The local district must develop a plan to meet its assessed needs in math and science. This plan must be completed by October 18, 1985.

In Great Falls, all elementary teachers, secondary teachers in the areas of math, science, computers and foreign language, and all building administrators completed the state Math/Science needs assessment in Spring, 1985. A local report was compiled, based on the responses of local teachers to the state assessment. Some private schools also participated in the local study, as per federal regulations governing the assessment (see Appendix).

In order to receive its share of the funding given to Montana, Great Falls Public Schools must submit a proposal based on the results of the local needs assessment. All funds allocated under the program must be spent for staff development or inservice in math/science. According to the Montana OPI:

> All funds allocated under the elementary and secondary program must be spent for staff development or inservice in math and science. Foreign Language inservice may be supported through the higher education portion of the funds. Although computer education was in-

cluded in the original legislation, no funds may be spent in this area until a district has completed all of its staff development needs in math, science and foreign language. No monies can be spent on equipment or instructional materials until all staff development needs in math, science, foreign language and computer education have been satisfied. In order to waive this clause, a district must certify, in writing, that all staff development needs have been met in all subject areas. The waiver request will be reviewed and, if needs have been met, funds may be used for equipment and instructional materials.

The remainder of this report contains the local Math/Science Needs Assessment, total Montana results on the Assessment, and an analysis of the most pressing needs in mathematics inservice for teachers in Great Falls, Montana.

DEMOGRAPHICS

The total number of elementary teachers responding on the State Math/Science Needs Assessment was 3128 (including all elementary school teachers grades K-6 and self-contained grade 7-8 teachers). In Great Falls, 217 K-6 teachers responded to the survey. 250 of the teachers teach in Great Falls Public Schools, while 21 teach in private schools.

On the secondary portion of the Assessment, 458 secondary math teachers responded, including 37 Great Falls secondary math teachers. Seven of the 36 local teachers have taught 26 years or more.

EXPERIENCE AND EDUCATION

71.7% of the local elementary teachers have 14 or more years teaching experience. 51.3% of the local secondary techers have 17 or more years teaching experience. 89.2% of the local secondary math teachers hold an endorsement in math. 29.8% of the local elementary teachers have a Master's degree. 64.9% of the local secondary math teachers have a Master's degree, but only six teachers have a Master's degree in mathematics.

124 local elementary teachers completed from 6 to 10 quarter credit hours in math during an undergraduate program. 67 completed from 11-15 credits in math as an undergraduate, while 27 completed 16 or more math credits as an undergraduate.

Since receiving the Bachelor degree, 163 (64%) local elementary teachers have taken from 0 to 5 credits in mathematics. 95 have taken from 6 to 15 credits in math since graduating. Secondary teachers without a Master's degree in mathematics have taken from 0-6 credits (6 teachers) to 7-15 credits (10 teachers) to 16-23 credits (5 teachers) to 24-36 credits (5 teachers).

179 local elementary teachers said they had attended 3 or less inservices/workshops on math during the past five years. 77 said they had attended from 4-7 workshops in that amount of time, while 8 said they had attended 8-12 math workshops since 1980.

Eight (21.6%) local secondary math teachers said they were considering leaving math teaching in the next five years for a job in business/industry, while 11 others (29.7%) were considering leaving. This is compared to other math teachers in the state who said they were planning to leave (18.9%) or were thinking about it (38.9%). The number of teachers planning to leave math education is slightly higher for Great Falls teachers than for all Montana math teachers.

Seven local math teachers said they planned to retire in the next five years (18.9%), while 7 others said they might retire in that time (19.9%). Nearly 40% of the secondary math teachers in Great Falls expressed an interest in retiring in the next five years.

17 secondary math teachers (45.9%) have attended from 0-3 inservices on math in the past five years, while 15 (40.5%) have attended from 4-7 inservices in that time. Three teachers have attended from 8-12, while two have attended 13 or more inservices since 1980. Twelve secondary math teachers are not a member of any mathematics professional association.

MATHEMATICS INSTRUCTION

102 (37.5%) local elementary teachers say they teach over 201 minutes of mathematics per week, 29 (10.7%) spent 51-100 minutes, and 17 (6.3%) said they spent 50 or less minutes teaching math per week. In a study of Great Falls Public Schools last December, primary teachers reported spending 33 or more minutes per day on math, while intermediate teachers reported spending an average of 47 minutes per day on math. According to Dishaw (1977), average schools spend 45 minutes daily on mathematics instruction, while high average schools spend 60 mintues daily on math instruction, a teacher would have to teach about 300 minutes of math weekly.

On the state math assessment, only 37.5% of Great Falls teachers spent over 201 minutes, while overall state results show that 45.7% (1379) of elementary teachers spend more than 201 minutes on math per week.

54.1% of Great Falls elementary teachers report using manipulatives or an activity approach while teaching mathematics once to three times per week, while only 4 (10.8%) secondary mathematics teachers use manipulatives or an activity approach while teaching mathematics one to three times a week.

23.2% of elementary local teachers reported spending 2-3 times per week using a problem solving approach while

teaching math. 33.5% said they utilized this approach once a week, 60 said they used it once every two weeks, and 40 said they used it once a month. 32.5% of the local secondary teachers said they used a problem solving approach in teaching two to three times per week, 24.3% said they used it once a week, 16.2% said they used it once every two weeks, 7 related using it once a month, and 3 never used problem solving. This question was confusing, because it did not differentiate between the use of problem solving strategies and word problem solving. One of the hottest topics in math education today is teaching the use of problem solving strategies for higher-level thinking. While some Great Falls teachers have received this training, all should have adequate skill in using and teaching problem solving strategies.

Grade 3-6 elementary teachers in Great Falls Public Schools received three hours of calculator inservice three years ago. The assessment reflects the answers of all K-6 teachers in the public schools and three private schools. 48.2% local elementary teachers do not use the calculator at all for instruction. 24.6% report using it once a month, 3.7% use it every two weeks, 4.4% use it once a week, and 1.1% use it more than once a week. 32.4% of the elementary teachers report that there are no calculators available for students, 16.2% say there are a few available, and 40.8% report that there is one calculator available for each student in the classroom. Currently, each elementary

building has at least one classroom set or more available for teacher use.

Only 62.2% (23) secondary teachers believe calculators should be used as a regular part of the math curriculum at secondary level. 13.5% had no opinion, while 24.3% (9) felt calculators should not be used as a regular part of the math curriculum. When asked how often calculators are used in the secondary classroom, 21.6% said once a month, 24.3% said once a week, 8.1% said two to three times per week, and 13.5% said anytime studens wish. Only 48.6% of local secondary teachers said there was one calculator available for each student. 24.3% said 0 calculators were avilable for student use. The use of calculators for daily use in math classrooms is endorsed by national math organizations as a means to take time available to spend on more valuable math topics than computation. According to Grayson Wheatley and Robert Reys (1980), emphasis should be shifted to applications and topics which are currently crowded out by the time spent on computation.

97.8% of local elementary teachers feel capable to very capable to teach the mathematical content at their grade level; 88.9% said they are interested to very interested in teaching math at their grade level. Out of all subjects, however, only 7% say they enjoy teaching math the most of all elementary subjects. 83.2% said they felt mathematics

should be taught with a hands-on activity-centered methodology.

Both elementary and secondary teachers were asked to assess the adequacy of instructional resources in the local district. 95.2% of local elementary teachers feel the textbooks they use are adequate, while 70.2% of the secondary techers feel their textbooks used are adequate. 84.6% of the elementary techers described instructional materials (manipulatives, etc.) as adequate, while 91.9% of the secondary teachers felt materials were adequate. 95.6% of elementary teachers felt that curriculum guides were adequate to very adequate, while 69.8% of local secondary teachers felt this was so at their level. 74.3% of elementary teachers felt the supplementary materials available for remediation or enrichment were adequate. 69.2% of the local elementary teachers said math inservice was adequate, while 25.7% said it was not. The National Council of Teachers of Mathematics, in its soon to be released position statement on professional development, relates that teachers cannot depend on what they learned as undergraduates to carry them through their entire careers.

Local elementary teachers rated the need for math inservice as high (18.7%) moderate (42.6%), low (33.8%).

Local elementary teachers said the inservice format they would most likely attend would be summer sessions offered in the local area for college or recertification

credit (55.9%). The second most-favored format was periodic after school during school year (25.7%). Secondary teachers said they would most likely attend weekday sessions offered in the local area (43.2%). Their second most-favored format was local summer sessions (37.8%).

Math topics identified as important to elementary teachers for improving their teaching of mathematics are: Problem-Solving, picked 23.2% as a first choice, and 24.3% as a second choice; application of math, first choice of 15.4%, and second choice of 17.3%; computation, picked by 23% as a first choice and by 4.8% as a second choice, and activities to teach math, first choice 7.7% of the time, second choice 10.7% of the time. Improving student attitude was a first choice of 5.1% of the elementary teachers, while 6.6% picked it as a second choice for training.

Problem solving was chosen by local secondary teachers only 10.8% of the time as a first choice for training, as compared to the state report of 26.6% secondary teachers choosing problem solving. Only another 8.1% of local teachers made it a second choice.

16.2% of local secondary math teachers picked improving attitudes as a first choice, but 10 picked improving attitudes as a second choice topic.

The development of higher-order thinking skills was picked as a first choice inservice topic by 18.9% of Great

Falls secondary teachers and as a second choice topic by 13.5% of the local secondary teachers.

USE OF COMPUTERS IN MATHEMATICS

96% of all elementary teachers say they took from 0-5 credits of computer science as an undergraduate (this is rather meaningless when 0 is included as an option). Over 50% have attended computer science workshops in the last five years, while 39.9% have taken two or more computer classess for credit. 64.3% said they had taken from 0-5 credits in computer science since graduation (again, meaningless due to the 0 being included). 69.9% of local elementary teachers said 1-2 computers are available for instructional use, 7.7% say 3-5 computers are available, 8.8% say 5-8 computers are available. 6.6% say 9 or more computers are available. 45.6% use the computer as a teaching tool, mainly for drill and practice (13.2%). 9.2% use the computer for enrichment, while 4.8% use it to extend content. 48.5% of the elementary teachers said students used the computer an average of 1-10 minutes per week, 21.3% said 11-25 minutes per week, 10.3% said 20-40 minutes per week, and 8.8% said students used the computer 41 or more minutes per week.

80.9% of local elementary teachers felt moderately capable to very capable to teach various subjects at grade level. Nearly 17% said they could use some help, as compared with 32.5% statewide. 87.1% said they were

moderately to very interested in using the computer to teach various subjects areas. Nearly 11% were not so interested.

79.4% of local elementary teachers rated local computer hardware adequte as an instructional resource, while 15.1% said it was not adequate. 81% said software was adequate, while 16.2% said it was not.

43% said the need for computer education is high to very high, while 30.9% describe it as moderate. 21.7% describe the need as low.

Topics important to local elementary teachers to improve the use of the computer including learning to integrate computer software (first choice of 23.9%, second choice of 13.2%); use of computer to extend content (12.5% first choice, 14% second choice); use of computer for enrichment (11% first choice, 17.6% second choice); computer literacy (13.2% first choice, 8.5% second choice); use of computer for remediation (5.5% first choice, 14% second choice).

48.6% of local secondary teachers said they had 0 computers available for instruction, while 10.8% said they had 6 or more available. 56.8% said they do not regularly use the computer to teach mathematics. 75.7% of local teachers as compared to 56.7% statewide said that students spend 0 minutes per week; 5.4% said students spend 11-25 minutes per week. 48.6% described local computer hardware

as inadequate, while 38.8% said it was adequate, and 13.5% said they did not know. Software was rated as adequate by 35.1% of the teachers, with 48.6% rating it inadequate and 16.2% marking don't know. Use of the computer was rated by only 8.1% of local teachers as a first choice for staff.

In summary, the following staff development is needed:

Elementary

"Problem-Solving" was the topic marked by 23.5% of the elementary staff as a first priority for training. This topic was also marked as a second-choice by 24.3%. "Problem-Solving", as a category, is misleading because of the various connotations of the term. Therefore, the number of teachers who have taken a problem-solving strategies class/inservice was clarified by a second needs assessment in September, 1985:

1. 4 kindergarten teachers or 16% of the kindergarten staff have had a class in problem solving.

2. 3 grade one teachers or 7% have had training.

3. 5 second grade teachers or 11% of the second grade staff have had training.

4. 11 of the third grade teachers or 31% have had training.

5. 9 fourth grade teachers or 23% of the fourth grade staff have had training.

6. 15 fifth grade teachers or 44% of the fifth grade staff have had training.

7. 12 sixth grade teachers or 36% of the sixth grade staff have had training.

Training must be set up for other grade levels. Priorities should be placed on sixth, fifth, fourth and third for the training first. Problem-solving strategies have been part of the math curriculum since 1980, but only part of the elementary staff has been trained to teach the strategies. With the funding available to the Great Falls Public Schools from Public Law 98-377, all elementary teachers can be trained in problems-solving strategies.

Secondary

Developing Thinking Skills was the first choice topic (Secondary Math State Needs Assessment, p.9) of 7 secondary math teachers; another 5 teachers picked this topic as a second-choice. "Improving

Attitudes" was the first choice topic of 6 math teachers, and the second choice topic of 10 teachers.

In Conclusion, the staff development money derived from Public Law 98-377 should be utilized primarily to teach the above first and second choice topics. The other topics should be adressed as need indicates on the state assessment.

Attached are the results of the math needs assessment, K-12, for Great Falls and for Montana.

SECONDARY MATH STATE NEEDS ASSESSMENT

Local and State Responses

	Question	LOCAL		STATE	
1	How many students are enrolled in your school system/ district?				
	a. 1-80			32	7.1
	b. 81-300			99	22.1
	c. 301-800			76	17.0
	d. 801-2000	4	10.8	99	22.1
	e. more than 2000	32	86.5	142	31.7
2	Sex				
	a. female	12	32.4	108	23.5
	b. male	25	67.6	350	76.5
3	Age				
	a. 20-24			17	3.7
	b. 25-29			49	10.7
	c. 30-39	14	37.8	189	41.2
	d. 40-45	11	29.7	113	24.6
	e. 46 or older	11	29.7	91	19.8
	EXPERIENCE				
4	Total years teaching experience				
	a. 1-5	2	5.4	83	18.2
	b. 6-10	7	18.9	79	17.3
	c. 11-16	9	24.3	121	26.5
	d. 17-25	12	32.4	142	32.4
	e. 26 or more	7	18.9	32	7.0
5	What grade levels do you teach?				
	a. 7-8	5	13.5	125	27.1
	b. 7-9	17	45.9	55	11.9
	c. 9-12	2	5.4	136	29.5
	d. 10-12	12	32.4	88	19.1
	e. 7-12	1	2.7	57	12.4

6 How many years have you taught in the system/district in which you are presently teaching?

	LOCAL		STATE	
a. 1-5	3	8.1	163	35.6
b. 6-10	6	16.2	86	18.8
c. 11-16	10	27.0	98	21.4
d. 17-25	16	43.2	102	22.3
e. 26 or more	2	5.4	9	2.0

7 Which of the following grade levels are you certified to teach? (Mark all that apply.)

a. Elementary	1	2.7	75	15.3
b. Secondary	31	83.8	378	77.3
c. K-12	3	8.1	35	7.2
d. non-certified			1	0.2

8 What is the highest level mathematics course that you are presently teaching?

a. Grade 7-8 math	10	27.0	123	26.4
b. General Math/ Consumer Math	2	5.4	24	5.2
c. Algebra I	11	29.7	74	15.9
d. Geometry	2	5.4	56	12.0
e. Algebra II/ Advanced Math	11	29.7	189	40.6

[24] How would you best describe your qualifications to teach the highest level mathematics course that you presently teach?

a. very qualified	33	89.2	340	74.1
b. qualified	3	8.1	99	21.6
c. moderately qualified	1	2.7	14	3.1
d. could use some help			6	1.3

EDUCATION

9 Do you currently hold an endorsement in mathematics?

a. Yes	33	89.2	373	81.8
b. No	3	8.1	83	18.2

10 If you do not hold an endorsement in mathematics, how many quarter credit hours in mathematics or mathematics education have you completed?

a. 0-6	1	2.7	13	14.9
b. 7-12	1	2.7	18	20.7
c. 13-18			25	28.7
d. 19-24	2	5.4	18	20.7
e. 25-30	1	2.7	13	14.9

		LOCAL		STATE	
11	Do you have a Master's degree?				
	a. Yes	24	64.9	169	37.4
	b. No	11	29.7	283	62.6
12	If you have a Master's degree, is it in mathematics?				
	a. Yes	6	16.2	70	36.6
	b. No	18	48.6	121	63.4
13	If you do <u>not</u> have a Master's degree in mathematics, how many quarter credit hours in mathematics have you completed since receiving your Bachelor's degree?				
	a. 0-6	6	16.2	138	35.8
	b. 7-15	10	27.0	105	27.3
	c. 16-23	5	13.5	60	15.6
	d. 24-36	5	13.5	46	11.9
	e. 37 or more	3	8.1	36	9.4
14	Are you considering leaving mathematics teaching within the next five years for a job in business and/or industry?				
	a. Yes	8	21.6	86	18.9
	b. Maybe	11	29.7	177	38.9
	c. No	18	48.6	192	42.2
15	Are you considering leaving mathematics teaching within the next five years for an educational administration position?				
	a. Yes	4	10.8	35	7.5
	b. Maybe	6	16.2	83	17.7
	c. No	25	67.6	351	74.8
16	Are you considering leaving mathematics teaching within the next five years because of retirement?				
	a. Yes	7	18.9	47	10.3
	b. Maybe	7	18.9	63	13.8
	c. No	23	62.2	348	75.9
17	In the future, do you expect that your school will have difficulty retaining fully qualified mathematics teachers?				
	a. Yes	21	56.8	222	47.7
	b. No	7	18.9	138	29.7
	c. Don't know	8	21.6	105	22.6
18	During the past 3-5 years, has your school had difficulty in hiring fully qualified mathematics teachers?				
	a. Yes	4	10.8	69	15.0
	b. No	23	62.2	273	59.5
	c. Don't know	8	21.6	117	25.5

		LOCAL		STATE	
19	In the future, do you expect your school to have difficulty in hiring fully qualified mathematics teachers?				
	a. Yes	19	51.4	227	48.5
	b. No	7	18.9	119	26.0
	c. Don't know	11	29.7	117	25.5

STAFF DEVELOPMENT

20	During the past five years, how many inservices or conference workshops concerning mathematics or mathematics education have you attended?				
	a. 0-3	17	45.9	253	55.2
	b. 4-7	15	40.5	161	35.2
	c. 8-12	3	8.1	27	5.9
	d. 13-20	2	5.4	13	5.4
	e. 21 or more			4	0.9
21	Are you currently a member of any of the following professional associations? (Mark all that apply.)				
	a. MCTM	10	27.0	235	39.2
	b. NCTM			123	20.5
	c. MAA	2	5.4	6	1.0
	d. MCCE			38	6.0
	e. None of the above	12	32.4		

a and b = 8 21.6%
a and d = 2 5.4%
a, b and d = 2 5.4%
a, b, c and d = 1 2.7%

TEACHING STRATEGIES

22	Approximately, how frequently do you use manipulatives or an activity approach in the process of teaching mathematics?				
	a. not at all	8	21.6	74	16.2
	b. once a month	16	43.2	153	33.5
	c. once every two weeks	9	24.3	121	26.5
	d. once a week	3	8.1	75	16.4
	e. two to three times a week	1	2.7	34	7.4
23	How often do you use a problem solving approach in the teaching of mathematics in your classroom?				
	a. not at all	3	8.1	19	4.1
	b. once a month	7	18.9	55	12.0
	c. every two weeks	6	16.2	73	15.9
	d. once a week	9	24.3	133	24.3
	e. two to three times per week	12	32.4	178	38.9

		LOCAL		STATE	
25	Do you believe that calculators should be used as a regular part of the mathematics curriculum at your grade level?				
	a. Yes	23	62.2	282	61.6
	b. No	9	24.3	135	29.5
	c. No opinion	5	13.5	41	9.0
26	How many calculators are available for students in your classroom?				
	a. 0	9	24.3	160	35.0
	b. few	10	27.0	179	27.0
	c. one per student	18	48.6	118	25.8
27	How often do you use calculators in your mathematics classes?				
	a. once a month	8	21.6	78	23.9
	b. once every two weeks	3	8.1	32	9.8
	c. once a week	9	24.3	39	11.9
	d. two to three times a week	3	8.1	60	18.3
	e. anytime students wish	5	13.5	118	36.1
28	On a regular basis, how many computers do you have available to use for mathematics instruction?				
	a. 0	18	48.6	152	33.2
	b. 1-2	13	35.1	124	27.1
	c. 3-5	1	2.7	60	13.1
	d. 6-10	3	8.1	67	14.6
	e. 11 or more	1	2.7	55	12.0
29	Do you regularly make use of a computer in the teaching of mathematics?				
	a. Yes	3	8.1	105	28.7
	b. No	21	56.8	261	71.3
30	How do you use the computer in your classes? (Mark all that apply.)				
	a. drill and practice			83	23.6
	b. problem solving	1	2.7	89	25.4
	c. tutorial			68	19.4
	d. games			46	13.1
	e. record keeping/ grading	3	8.1	65	18.5

a and b = 1 2.7
a, b and c = 1 2.7
a, c and e = 2 5.4
a, b, c, d and e = 1 2.7
missing = 28

		LOCAL		STATE	
31	Which of the following statements best describes the ways in which you use the computer in your classes? (Mark all that apply.)				
	a. enrichment	2	5.4	101	28.7
	b. extending content	1	2.7	70	19.9
	c. motivation			81	23.0
	d. regular content instruction			51	14.5
	e. remedial instruction			47	13.4
	b and c = 1		2.7		
	a, b and c = 1		2.7		
	a, c and e = 1		2.7		
	a, c, d and e = 1		2.7		
	a, b, c, d and e = 1		2.7		
	missing = 29				
32	What is the average time (minutes per week) that students regularly use the computer in your classes?				
	a. 0	28	75.7	246	56.7
	b. 1-10	4	10.8	108	24.9
	c. 11-25	2	5.4	41	9.4
	d. 26-40			22	5.1
	e. 41 or more			17	3.9

LINES 33-39 REQUIRE YOU TO RATE THE ADEQUACY OF THE RESOURCES FOR MATHEMATICS INSTRUCTION IN YOUR SCHOOL SYSTEM/DISTRICT. ONE LINE HAS BEEN DESIGNATED FOR EACH RESOURCE LISTED. ON EACH LINE, YOU MAY MARK EITHER a, b, c, d, or e; HOWEVER, MARK ONLY ONE OPTION ON EACH LINE.

		a. Very Adequate		b. Adequate		c. Not Adequate		d. Very Inadequate		e. Don't Know	
33	Textbooks										
	LOCAL	8	21.6	18	48.6	8	21.6	2	5.4		
	STATE	191	41.5	220	47.8	36	7.8	13	2.8		
34	Instructional materials for mathematics (manipulatives, models, etc.)										
	LOCAL	6	16.2	28	75.7	2	5.4				
	STATE	57	12.5	254	55.7	115	25.2	29	6.4	1	.2
35	Computer hardware										
	LOCAL	5	13.5	9	24.3	7	18.9	11	29.7	5	13.5
	STATE	77	16.9	164	36.0	127	27.9	56	12.3	32	7.0
36	Computer software										
	LOCAL	4	10.8	9	24.3	10	27.0	8	21.6	6	16.2
	STATE	28	6.2	141	31.1	156	34.4	87	19.2	42	9.3

37	Mathematics library resources									
	LOCAL	3	8.1	25	67.6	5	13.5	1	2.7	3 8.1
	STATE	30	6.6	219	47.9	116	25.4	55	12.0	37 8.1
38	Calculators									
	LOCAL	4	10.8	20	54.1	9	24.3	1	2.7	2 5.4
	STATE	41	9.0	178	39.1	131	28.8	83	18.2	22 4.8
39	Curriculum guides									
	LOCAL	5	13.5	21	56.8	5	13.5	3	8.1	2 5.4
	STATE	72	15.7	261	57.0	66	14.4	35	7.6	24 5.2

40 How would you rate the support of your school system/district in providing inservice opportunities for mathematics teachers?

a. very adequate	1	2.7	45	10.0
b. adequate	19	51.4	187	41.5
c. not adequate	13	35.1	162	35.9
d. very inadequate	3	8.1	57	12.6

41 Which of the following inservice opportunities best describes how inservice is provided by your school system/district? (Mark all that apply.)

a. PIR days	14	37.8	312	43.1
b. release time	4	10.8	155	21.4
c. funds for college courses or attending workshops	2	5.4	57	7.9
d. local inservice	3	8.1	106	14.6
e. funds to attend content-type conferences			94	13.0

a and b = 6 16.2
a and d = 6 16.2
a, b and d = 1 2.7
a b and e = 1 2.7

42 How would you rate the need for inservice programs in the area of mathematics?

a. very high	1	2.7	87	18.8
b. high	17	45.9	163	35.1
c. moderate	13	35.1	171	36.9
d. low	5	13.5	37	8.0
e. no need	1	2.7	6	1.3

43-44 Which <u>two of the following</u> formats for inservice programs in your region would you be most willing to attend?

FIRST CHOICE

	LOCAL		STATE	
a. weekday sessions	16	43.2	202	43.7
b. weekend sessions	2	5.4	27	5.8
c. evening meetings	6	16.2	42	9.1
d. summer college	2	5.4	63	13.6
e. local summer sessions	11	29.7	128	27.7

SECOND CHOICE

a. weekday sessions	5	13.5	79	17.5
b. weekend sessions	4	10.8	39	8.6
c. evening meetings	3	8.1	92	20.4
d. summer college	9	24.3	86	19.1
e. local summer sessions	14	37.8	154	34.1

45 For inservice programs offered in mathematics, what percentage of the course should involve methodology as compared to content?

a. less than 10%	5	13.5	51	11.1
b. 11-25%	7	18.9	107	23.4
c. 26-40%	9	24.3	122	26.6
d. 41-60%	6	16.2	124	27.1
e. 61% or more	10	27.0	54	11.8

BELOW ARE LISTED SEVERAL TOPICS WITHIN MATHEMATICS. IN LINES 46-50, YOU WILL BE ASKED TO IDENTIFY THE FIVE TOPICS THAT YOU FEEL ARE MOST IMPORTANT FOR YOU FOR IMPROVING YOUR TEACHING OF MATHEMATICS. EACH TOPIC LISTED HAS BEEN ASSIGNED A LETTER CODE. TO IDENTIFY A TOPIC, FILL IN THE CORRESPONDING LETTER CODE ON A LINE. USE ONE LINE FOR EACH TOPIC YOU IDENTIFY. FOR EXAMPLE, IF YOU FEEL THAT "DIAGNOSIS AND REMEDIATION" IS THE TOPIC OF FIRST IMPORTANCE, MARK "a" AND "c" ON LINE 46.

STAFF DEVELOPMENT NEEDED

		1st Choice Topic LOCAL		STATE	
(ab)	Problem Solving	4	10.8	122	26.6
(ac)	Activity Approach			23	5.0
(ad)	Use Computer	3	8.1	39	8.5
(ae)	Remediation			17	3.7
(be)	Geometry	3	8.1	10	2.2
(bd)	Statistics			3	.7
(be)	Improving Attitudes	6	16.2	63	13.8
(cd)	Select Materials			7	1.5
(ce)	Develop Curriculum	3	8.1	18	3.9
(de)	Number Theory			1	.2
(abc)	Devel. Thinking Skills	7	18.9	76	16.6
(abd)	Consumer Math			2	.4
(abe)	Teach General Math	1	2.7	5	1.1
(acd)	Nonenc. Geometry			1	.2
(ace)	Calculus/Analysis	1	2.7	9	2.0
(bcd)	Teach Jr. High Math	5	13.5	29	6.3
(bce)	Algebra	1	2.7	7	1.5
(cde)	History of Math			3	.7
(ade)	Topology				

		2nd Topic Choice LOCAL		STATE	
(ab)	Problem Solving	3	8.1	62	13.5
(ac)	Activity Approach	1	2.7	47	10.3
(ad)	Use Computer	2	5.4	50	10.9
(ae)	Remediation			22	4.6
(be)	Geometry	1	2.7	7	1.5
(bd)	Statistics			12	2.6
(be)	Improving Attitudes	10	27.0	66	14.4
(cd)	Select Materials	3	8.1	22	4.8
(ce)	Develop Curriculum	1	2.7	15	3.3
(de)	Number Theory	4	10.8	11	2.4
(abc)	Devel. Thinking Skills	5	13.5	59	12.9
(abd)	Consumer Math	1	2.7	9	2.0
(abe)	Teach General Math	1	2.7	9	2.0
(acd)	Nonenc. Geometry			1	.2
(ace)	Calculus/Analysis			10	2.2
(bcd)	Teach Jr. High Math	2	5.4	23	5.0
(bce)	Algebra	1	2.7	17	3.7
(cde)	History of Math	1	2.7	2	.4
(ade)	Topology				

50 Public private School Employee:

a. Public	36	97.3
b. Private	1	2.7

51 Urban School Employee:

37	100.0

STATEWIDE NEEDS ASSESSMENT FOR MATH/SCIENCE BILL
QUESTIONNAIRE FOR
ELEMENTARY SCHOOL TEACHERS

STATE N = 3138
LOCAL N = 272

This questionnaire is intended for all elementary school teachers grades K-6 and those teachers in grades 7 and 8 who teach in self-contained classrooms.

DEMOGRAPHICS

Question		LOCAL N	LOCAL %	STATE N	STATE %
1	How many students are enrolled in your district?				
	a. 1-80	1	.4	343	11.6
	b. 81-300	18	6.6	545	18.4
	c. 301-800	1	.4	421	14.2
	d. 801-2000	16	5.9	614	20.7
	e. more than 2000	228	83.8	1037	35.0
2	Sex				
	a. female	225	82.7	2449	78.0
	b. male	39	14.3	689	22.0
[87]	Do you teach in a public or a private school?				
	a. public	250	91.9		
	b. private	21	7.7		
[88]	Do you teach in a urban or rural school?				
	a. urban	272			
	b. rural	0			
3	Which grade level(s) do you teach? (Mark all that apply.)				
	a. K	27	9.9	407	13.6
	b. 1	48	17.6	696	23.2
	c. 2	45	16.5	656	21.9
	d. 3	42	15.4	621	20.7
	e. 4	36	13.2	614	20.5
	a-e	1	.4		
4	Which grade level(s) do you teach? (Mark all that apply.)				
	a. 5	34	12.5	588	36.0
	b. 6	33	12.1	600	36.7
	c. 7	1	.4	201	12.3
	d. 8	1	.4	244	14.9

a and b = 1 .4
b, c and d = 3 1.1
a, b, c and d = 1 .4

		LOCAL		STATE	
5	Total years teaching experience.				
	a. 1-5	36	13.2	682	22.1
	b. 6-10	21	7.7	695	22.5
	c. 11-16	81	29.8	866	28.0
	d. 17-25	114	41.9	646	20.9
	e. 26 or more	16	5.9	200	6.5
6	How many years have you taught in the school system/ district in which you are presently teaching?				
	a. 1-5	43	15.8	1114	35.9
	b. 6-10	25	9.2	718	23.2
	c. 11-16	96	35.3	749	24.2
	d. 17-25	98	36.0	459	14.8
	e. 26 or more	8	2.9	59	1.9
7	Which of the following grade levels are you certified to teach? (Mark all that apply.)				
	a. Elementary	249	91.5	2833	84.0
	b. Secondary	3	1.1	143	4.2
	c. K-12	8	2.9	382	11.3
	d. non-certified			16	.4
	b and c = 7		2.6		
	b and d = 1		.4		
9	How many years has it been since you received your Bachelor's degree?				
	a. 1-3	13	4.8	276	9.0
	b. 4-7	21	7.7	486	15.9
	c. 8-13	42	15.4	856	28.0
	d. 14-20	146	53.7	1044	34.1
	e. 21 or more	49	18.0	400	13.1
10	Do you have a Master's degree?				
	a. Yes	81	29.8	571	19.0
	b. No	187	68.8	2442	81.1
11	Do you have a Master's degree in any of the following areas? (Mark all that apply.)				
	a. administration	3	1.1	92	12.6
	b. elementary education	59	21.7	428	58.8
	c. secondary education	8	2.9	99	13.6
	d. subject area	4	1.5	36	4.9
	e. other education degree	5	1.8	73	10.0
	a and b = 5		1.8		
	b and c = 1		.4		
	b and e = 1		.4		
	b, d and e = 1		.4		

		LOCAL		STATE	
For lines 12-15, identify the number of quarter credit hours that you completed in the following subjects <u>during your undergraduate program</u>.					
12	Mathematics				
	a. 0-5	46	16.9	355	11.6
	b. 6-10	124	45.6	1210	39.7
	c. 11-15	67	24.6	1000	32.8
	d. 16-20	23	8.5	366	12.0
	e. 21 or more	4	1.5	120	3.9
13	Science				
	a. 0-5	21	7.7	253	8.3
	b. 6-10	98	36.0	882	29.0
	c. 11-15	76	27.9	987	32.4
	d. 16-20	35	12.9	508	16.7
	e. 21 or more	34	12.5	415	13.6
		a and d = 1 .4			
		c and d = 1 .4			
14	Foreign Language				
	a. 0-5	204	75.0	2416	79.2
	b. 6-10	31	11.4	323	10.6
	c. 11-15	17	6.3	200	6.6
	d. 16-20	7	2.6	55	1.8
	e. 21 or more	5	1.8	55	1.8
15	Computer Science				
	a. 0-5	261	96.0	2900	95.0
	b. 6-10	8	2.9	131	4.3
	c. 11-15			14	.5
	d. 16-20			5	.2
	e. 21 or more			3	.1

STAFF DEVELOPMENT AND INSERVICE

For lines 16-19, identify the number of quarter credit hours that you have completed in the following subjects <u>since receiving your Bachelor's degree</u>.					
16	Mathematics				
	a. 0-5	163	59.9	2347	76.7
	b. 6-10	78	28.7	568	18.6
	c. 11-15	17	6.3	105	3.4
	d. 16-20	3	1.1	22	.7
	e. 21 or more	5	1.8	17	.6
17	Science				
	a. 0-5	175	64.3	2207	72.3
	b. 6-10	73	26.8	626	20.5
	c. 11-15	17	6.3	150	4.9
	d. 16-20	3	1.1	51	1.7
	e. 21 or more	4	1.5	17	.6

		LOCAL		STATE	
18	Foreign Language				
	a. 0-5	263	96.7	2998	98.5
	b. 6-10	4	1.5	34	1.1
	c. 11-15			5	.2
	d. 16-20			3	.1
	e. 21 or more			5	.2
19	Computer Science				
	a. 0-5	175	64.3	2592	84.7
	b. 6-10	74	27.2	410	13.4
	c. 11-15	15	5.5	47	1.5
	d. 16-20	4	1.5	11	.4
	e. 21 or more	2	.7	1	.0

For lines 20-23, identify the number of inservice or conference workshops in each of the following areas that you have attended during the past five years.

20	Mathematics				
	a. 0-3	179	65.8	2440	79.0
	b. 4-7	77	28.3	555	28.0
	c. 8-12	9	3.3	63	2.0
	d. 13-20	3	1.1	18	1.1
	e. 21 or more	3	1.1	12	.4
21	Science				
	a. 0-3	197	72.4	2496	81.1
	b. 4-7	59	21.7	496	16.1
	c. 8-12	7	2.6	66	2.1
	d. 13-20	2	.7	13	.4
	e. 21 or more	2	.7	6	.2
	a and b =	2	.7		
	c and d =	1	.4		
22	Foreign Language				
	a. 0-3	268	98.5	3029	99.2
	b. 4-7	1	.4	18	.6
	c. 8-12			3	.1
	d. 13-20			3	.1
	e. 21 or more			1	.0
23	Computer Science				
	a. 0-3	131	48.2	2387	77.6
	b. 4-7	106	39.0	584	19.0
	c. 8-12	30	11.0	91	3.0
	d. 13-20	1	.4	9	.3
	e. 21 or more	1	.4	5	.2

TEACHING

		LOCAL		STATE	
24	Presently, do you teach mathematics as part of your regular teaching responsibilities?				
	a. Yes	262	96.3	2932	95.6
	b. No	5	1.8	136	4.5
25	How many minutes per week do you teach mathematics?				
	a. 0-50	17	6.3	195	6.5
	b. 51-100	29	10.7	296	9.8
	c. 101-150	69	25.4	492	16.3
	d. 151-200	44	16.2	657	21.8
	e. over 201	102	37.5	1379	45.7
26	How often do you use manipulatives or an activity approach in the teaching of mathematics in your classroom?				
	a. not at all	5	1.8	123	4.1
	b. once a month	58	21.3	593	19.7
	c. every two weeks	55	20.2	525	17.5
	d. once a week	62	22.8	754	25.1
	e. two to three times per week	85	31.3	1011	33.6
27	How often do you use a problem solving approach in the teaching of mathematics in your classroom?				
	a. not at all	12	4.4	86	2.9
	b. once a month	40	14.7	343	11.5
	c. every two weeks	60	22.1	581	19.5
	d. once a week	91	33.5	949	31.8
	e. two to three times per week	63	23.2	1028	34.4
28	How frequently do students in your classroom regularly use the calculator as a tool for learning mathematics?				
	a. not at all	131	48.2	1671	68.5
	b. once a month	67	24.6	398	16.3
	c. every two weeks	10	3.7	127	5.2
	d. once a week	12	4.4	130	5.3
	e. more than once a week	3	1.1	114	4.7

missing = 49 (18%)

	LOCAL		STATE	
29 If students use a calculator in your mathematics classroom, which of the following best describes how the calculators are used? (Check all that apply.)				
a. as a computational tool.	11	4.0	352	22.8
b. as an instructional tool.	5	1.8	209	13.5
c. for enrichment	44	16.2	588	38.0
d. for checking answers	12	4.4	398	25.8
a, c and d = 2		.7		
b, c and d = 2		.7		
a, b, c and d = 11		4.0		
a and b = 1		.4		
a and c = 5		1.8		
a and d = 2		.7		
b and c = 1		.4		
b and d = 1		.4		
c and d = 6		2.2		
a, b and d = 2		.7		
30 How many calculators are available for students in your classroom?				
a. 0	88	32.4	1734	63.0
b. few	44	16.2	692	25.2
c. one per student	111	40.8	325	11.8
missing = 25				
31 Presently, do you teach science as part of your regular teaching responsibilities?				
a. Yes	263	96.7	2751	89.8
b. No	6	2.2	313	10.2
32 How many minutes per week do you teach science?				
a. 0-50	46	16.9	780	27.3
b. 51-100	84	30.9	774	27.1
c. 101-150	50	18.4	669	23.4
d. 151-200	41	15.1	366	12.8
e. 201 or more	46	16.9	265	9.3
33 How frequently do students in your classroom regularly use the calculator as a tool for learning science?				
a. not at all	253	93.0	2662	94.4
b. once a month	12	4.4	109	3.9
c. every two weeks			22	.8
d. once a week	2	.7	20	.7
e. more than once a week			6	.2

		LOCAL		STATE	
34	How often do you use manipulatives or an activity approach in the teaching of science in your classroom?				
	a. not at all	7	2.6	143	5.0
	b. once a month	76	27.9	735	25.9
	c. every two weeks	73	26.8	703	24.8
	d. once a week	80	29.4	795	28.0
	e. more than once a week	30	11.0	460	16.2
35	How many science field trips of a half-day or more duration do you usually offer during the school year?				
	a. none	86	31.6	1396	45.9
	b. one	68	25.0	1008	33.2
	c. two	76	27.9	428	14.1
	d. three or more	36	13.2	207	6.8
36	Presently, are you teaching a foreign language as part of your regular teaching responsibilities?				
	a. Yes	11	4.0	155	6.5
	b. No	195	71.7	2233	93.5
37	How many minutes per week do you teach a foreign language?				
	a. 0-50	161	59.2	1708	97.5
	b. 51-100	2	.7	35	2.0
	c. 101-150			5	.3
	d. 151 or more			4	.2
38	How many computers are available for your instructional use?				
	a. 0	13	4.8	552	18.0
	b. 1-2	190	69.9	1776	57.9
	c. 3-5	21	7.7	319	10.4
	d. 6-8	24	8.8	125	4.1
	e. 9 or more	18	6.6	297	9.7
39	Is the computer used in your classroom either by you or your students?				
	a. Yes	244	89.7	2280	80.3
	b. No	15	5.5	558	19.6

		LOCAL		STATE	
40	Which of the following statements best describes how the computer is used in your classroom? (Mark all that apply.)				
	a. to teach computer literacy	9	3.3	1085	26.9
	b. to teach programming	1	.4	311	7.7
	c. to teach word processing			269	6.7
	d. as a teaching tool	124	45.6	2042	50.6
	e. not used as a teaching tool			325	8.1
41	If the computer is used as a teaching tool, in which of the following areas is it used? (Mark all that apply.)				
	a. drill and practice	36	13.2	2054	33.1
	b. simulation and problem-solving	3	1.1	1333	21.5
	c. games	2	.7	1564	25.2
	d. tutorial	2	.7	1152	18.6
	e. not used as a teaching tool	1	.4	96	1.5
42	Which of the following statements best describes the ways in which you use a computer in your classroom? (Mark all that apply.)				
	a. enrichment	25	9.2	2049	29.1
	b. extending content	13	4.8	1248	17.7
	c. motivation	2	.7	1633	23.2
	d. regular content instruction	6	2.2	884	12.6
	e. remedial instruction	2	.7	1224	17.4
43	What is the average time per week that students regularly use the computer in your classroom?				
	a. 0	20	7.4	679	23.3
	b. 1-10	132	48.5	1292	44.4
	c. 11-25	58	21.3	454	15.6
	d. 20-40	28	10.3	268	9.2
	e. 41 or more	24	8.8	215	7.4
44	How would you best describe your capabilities to teach the mathematical content at your grade level?				
	a. very capable	215	79.0	2308	74.5
	b. capable	51	18.8	688	22.2
	c. moderately capable	3	1.1	54	1.7
	d. could use some help	1	.4	47	1.5

	LOCAL		STATE	
45 How would you rate your interest in the teaching of mathematics at your grade level?				
a. very interested	199	73.2	2166	70.2
b. interested	70	25.7	826	26.8
c. moderately interested	2	.7	75	2.4
d. not so interested	1	.4	20	.6
46 How would you best describe your capabilities to teach the science content at your grade level?				
a. very capable	120	44.1	1212	39.3
b. capable	123	45.2	1375	44.5
c. moderately capable	23	8.5	373	12.1
d. could use some help	3	1.1	127	4.2
47 How would you rate your interest in the teaching of science at your grade level?				
a. very interested	111	40.8	1260	40.9
b. interested	122	44.9	1222	39.7
c. moderately interested	26	9.6	490	15.9
d. not so interested	11	4.0	109	3.5
48 How would you rate your capabilities to use a computer to teach various subjects at your grade level?				
a. very capable	52	19.1	411	13.3
b. capable	91	33.5	859	27.7
c. moderately capable	77	28.3	824	26.6
d. could use some help	46	16.9	1007	32.5
49 How would you rate your interest in using the computer to teach various subject areas at your grade level?				
a. very interested	98	36.0	1064	34.3
b. interested	86	31.6	1047	33.0
c. moderately interested	53	19.5	630	20.3
d. not so interested	29	10.7	360	11.6

		LOCAL		STATE	
50	Which of the following subjects do you enjoy teaching the most? (Mark all that apply.)				
a.	Language Arts	18	6.6	1776	21.1
b.	Mathematics	19	7.0	2131	25.3
c.	Reading	15	5.5	2014	23.9
d.	Science	3	1.1	1202	14.3
e.	Social Studies	6	2.2	1307	15.5
	a and b =	6	2.2		
	a and c =	12	4.4		
	a and d =	1	.4		
	a and e =	2	.7		
	b and c =	4	1.5		
	b and d =	8	2.9		
	b and e =	6	2.2		
	c and e =	2	.7		
	d and e =	1	.4		
	a, b and c =	38	14.0		
	a, b and d =	1	.4		
	a, b and e =	10	3.7		
	a, c and d =	4	1.5		
	a, c and e =	9	3.3		
	a, d and e =	4	1.5		
	b, c and d =	5	1.8		
	b, c and e =	3	1.1		
	b, d and e =	4	1.5		
	a, b, c and d =	17	6.3		
	a, b, c and e =	13	4.8		
	a, b, d and e =	3	1.1		
	a, c, d and e =	2	.7		
	b, c, d and e =	7	2.6		
	a, b, c, d and e =	48	17.6		

51	For which of the following subjects does each student in your class have his/her own textbook? (Mark all that apply.)				
a.	mathematics	40	14.7	2876	54.2
b.	science	9	3.3	2433	45.8
	a and b =	210	77.2		

		LOCAL		STATE	
52	Which of the following subjects do you think should be taught with a hands-on activity centered methodology?				
	a. Language Arts	1	.4	1026	11.8
	b. Mathematics	9	3.3	2469	28.4
	c. Reading	1	.4	957	11.0
	d. Science	30	11.0	2820	32.5
	e. Social Studies			1408	16.2
	a and b =	2	.7		
	a and c =	1	.4		
	a and d =	2	.7		
	b and c =	2	.7		
	b and d =	100	36.8		
	c and d =	1	.4		
	d and e =	4	1.5		
	a, b and c =	1	.4		
	a, b and d =	10	3.7		
	a, d and e =	2	.7		
	b, c and d =	5	1.8		
	b, c and e =	1	.4		
	b, d and e =	34	12.5		
	a, b, c and d =	3	1.1		
	a, b, d and e =	4	1.5		
	b, c, d and e =	1	.4		
	a, b, c, d and e =	54	19.9		

RATE THE ADEQUACY OF THE INSTRUCTIONAL RESOURCES IN YOUR SCHOOL SYSTEM/DISTRICT. ONE LINE HAS BEEN DESIGNATED FOR EACH RESOURCE LISTED. MARK ONLY ONE OPTION ON EACH LINE.

ADEQUACY OF INSTRUCTIONAL RESOURCES

Assess the adequacy of the instructional resources in your school system/district with regard to MATHEMATICS.

		Very Adequate		Adequate		Not Adequate		Very Inadequate		Don't Know	
53	Textbooks										
	LOCAL	154	56.6	105	38.6	7	2.6	2	.7	1	.4
	STATE	1678	54.3	1230	39.8	111	3.6	31	1.0	39	1.3
54	Instructional materials (manipulatives, activities, etc.										
	LOCAL	102	37.5	128	47.1	32	11.8	9	3.3	1	.4
	STATE	652	21.1	1424	46.2	755	24.5	212	6.9	36	1.2
55	Computer hardware										
	LOCAL	89	32.7	127	46.7	41	15.1	6	2.2	4	1.5
	STATE	537	17.5	1105	36.0	814	26.5	397	12.9	218	7.1

		Very Adequate		Adequate		Not Adequate		Very Inadequate		Don't Know	
56	Computer software										
	LOCAL	76	27.9	147	54.0	38	14.0	6	2.2	3	1.1
	STATE	342	11.1	1060	34.5	930	30.3	500	16.3	240	7.8
57	Curriculum Guides										
	LOCAL	169	62.1	91	33.5	6	2.2	1	.4	3	1.1
	STATE	1012	32.9	1401	45.5	366	11.9	192	6.2	106	3.4
58	Calculators										
	LOCAL	63	23.2	98	36.0	45	16.5	13	4.8	51	18.8
	STATE	237	7.8	612	20.1	787	25.8	811	26.6	602	19.7
59	Supplementary materials for remediation or enrichment										
	LOCAL	71	26.1	131	48.2	60	22.1	4	1.5	6	2.2
	STATE	559	18.2	1442	47.0	743	24.2	235	7.7	88	2.9
60	Mathematics inservice										
	LOCAL	54	19.9	134	49.3	49	18.0	21	7.7	11	4.0
	STATE	287	9.4	1055	34.4	984	32.1	546	17.8	193	6.3

Assess the adequacy of the instructional resources in your school system/district with regard to SCIENCE.

61	Textbooks										
	LOCAL	127	46.7	108	39.7	23	8.5	7	2.6	4	1.5
	STATE	1088	35.6	1246	40.8	397	13.0	196	6.4	127	4.2
62	Equipment										
	LOCAL	74	27.2	130	47.8	45	16.5	14	5.1	7	2.6
	STATE	347	11.4	1121	36.7	983	32.2	446	14.6	158	5.2
63	Facilities										
	LOCAL	46	16.9	132	48.5	61	22.4	15	5.5	15	5.5
	STATE	192	6.3	946	31.1	1099	36.1	566	18.6	240	7.9
64	Computers										
	LOCAL	77	28.3	109	40.1	58	21.3	4	1.5	20	7.4
	STATE	476	15.7	1065	35.1	825	27.2	411	13.6	253	8.3
65	Supplies										
	LOCAL	65	23.9	145	53.3	44	16.2	7	2.6	8	2.9
	STATE	360	11.8	1367	44.8	839	27.5	339	11.1	149	4.9

	Very Adequate		Adequate		Not Adequate		Very Inadequate		Don't Know	
66 Budget										
LOCAL	46	16.9	120	44.1	45	16.5	13	4.8	44	16.2
STATE	220	7.2	1062	34.8	823	27.0	363	11.9	581	19.1
67 Storage										
LOCAL	45	16.5	152	55.9	44	16.2	10	3.7	15	5.5
STATE	212	7.0	1140	37.5	915	30.1	519	17.1	256	8.4
68 Guides										
LOCAL	104	38.2	136	50.0	19	7.0	4	1.5	7	2.6
STATE	575	18.8	1420	46.5	564	18.5	266	8.7	228	7.5
69 Inservice										
LOCAL	42	15.4	115	42.3	78	28.7	22	8.1	12	4.4
STATE	144	4.7	743	24.4	1180	38.8	718	23.6	255	8.4

LINES 70-73 REQUIRE YOU TO RATE THE NEED FOR INSERVICE IN YOUR SCHOOL SYSTEM/DISTRICT. MARK ONLY ONE OPTION ON EACH LINE.

	Very High		High		Moderate		Low		Don't Know	
70 Mathematics										
LOCAL	25	5.5	36	13.2	116	42.6	92	33.8	12	4.4
STATE	491	15.9	706	22.9	1112	36.1	649	21.1	124	4.0
71 Science										
LOCAL	24	8.8	50	18.4	105	38.6	80	29.4	11	4.0
STATE	644	21.0	882	28.7	898	29.2	533	17.4	115	3.7
72 Computer Education										
LOCAL	45	16.5	72	26.5	84	30.9	59	21.7	10	3.7
STATE	820	26.7	867	28.2	842	27.4	436	14.2	105	3.4
73 Foreign Language										
LOCAL	14	5.1	22	8.1	28	10.3	100	36.8	99	36.4
STATE	325	10.6	286	9.3	441	14.4	1237	40.4	776	25.3

		LOCAL		STATE	
74	Which of the following inservice opportunities best describes how inservice is provided by your school system/district? (Mark all that apply.)				
	a. PIR days	40	14.7	2688	41.5
	b. release time	2	.7	1026	15.8
	c. funds for college courses for attending workshops	1	.4	577	8.9
	d. local inservice	18	6.6	1385	21.4
	e. funds to attend content-type conferences	2	.7	802	12.4
75-76	Which <u>two of the following</u> formats for inservice programs in your region would you be the most willing to attend?				
		FIRST CHOICE			
	a. weekday-school year	70	25.7	986	30.5
	b. weekend-school year	6	2.2	173	5.5
	c. evening meetings	4	1.5	193	6.1
	d. summer college	16	5.9	360	11.4
	e. local summer sessions	152	55.9	1462	46.4
		SECOND CHOICE			
	a. weekday-school year	49	18.0	690	22.1
	b. weekend-school year	18	6.6	345	11.1
	c. evening meetings	38	14.0	511	16.4
	d. summer college	80	29.4	782	25.1
	e. local summer sessions	57	21.0	787	25.3

Questions 77-81 - Five topics that you feel are MOST important to you for improving your teaching of mathematics at your grade level.

FIRST IMPORTANCE

		LOCAL		STATE	
77					
(ab)	Problem Solving	64	23.5	721	23.3
(ac)	Application of Math	42	15.4	355	11.5
(ad)	Activity to Teach Math	21	7.7	344	11.1
(ae)	Math Manipulatives	16	5.9	175	5.7
(bc)	Teach Math w/Computer	3	1.1	75	2.4
(bd)	Remediation	11	4.0	95	3.1
(be)	Geometry			5	.2
(cd)	Statistics	1	.4	7	.2
(ce)	Improve Student Attitude	14	5.1	177	5.7
(de)	Select Materials	9	3.3	68	2.2
(abc)	Develop Curriculum	5	1.8	84	2.7
(abd)	Number Theory	2	.7	14	.5
(abe)	Teach Fractions			18	.6
(acd)	Teach Percent			1	.0
(ace)	Estimation			4	.1
(ade)	Develop Thinking Skills	7	2.6	189	6.1
(bcd)	Teach Computation	63	23.2	528	17.1

SECOND IMPORTANCE

		LOCAL		STATE	
(ab)	Problem Solving	66	24.3	638	20.6
(ac)	Application of Math	47	17.3	468	15.1
(ad)	Activity to Teach Math	29	10.7	304	9.8
(ae)	Math Manipulatives	25	9.2	338	10.9
(bc)	Teach Math w/Computer	7	2.6	108	3.5
(bd)	Remediation	26	9.6	163	5.3
(be)	Geometry	1	.4	5	.2
(cd)	Statistics	1	.4	17	.5
(ce)	Improve Student Attitude	18	6.6	161	5.2
(de)	Select Materials	5	1.8	94	3.0
(abc)	Develop Curriculum	7	2.6	56	1.8
(abd)	Number Theory	1	.4	22	.7
(abe)	Teach Fractions	1	.4	36	1.2
(acd)	Teach Percent			10	.3
(ace)	Estimation			13	.4
(ade)	Develop Thinking Skills	13	4.8	224	7.2
(bcd)	Teach Computation	13	4.8	230	7.4

USE OF COMPUTER IN CLASSROOM

FIRST IMPORTANCE

		LOCAL		STATE	
(ab)	Prog. & Teach Basic	33	12.1	361	11.7
(ac)	Prog. & Teach LOGO	6	2.2	97	3.1
(ad)	Prog. & Teach Pascal	---	---	7	.2
(ae)	Prog. & Teach Word Proc.	6	2.2	82	2.6
(bc)	Learn/Teach Data Base	2	.7	30	1.0
(bd)	Integrate Software	65	23.9	687	22.2
(be)	Select Software	7	2.6	174	5.6
(cd)	Teach Computer Literacy	36	13.2	559	18.1
(ce)	Use Comp. to Man. Inst.	6	2.2	55	1.8
(de)	Use Comp. to Gen. Wksh.	5	1.8	20	.6
(abc)	Use Comp. for Remediation	15	5.5	149	4.8
(abd)	Use Comp. for Enrichment	30	11.0	234	7.6
(abe)	Use Comp. to Ext. Cont.	34	12.5	211	6.8
(bcd)	Use Comp. Recordkeeping	10	3.7	80	2.6
(bce)	Use Comp. w/Spec. Students	2	.7	66	2.1

SECOND IMPORTANCE

		LOCAL		STATE	
(ab)	Prog. & Teach Basic	7	2.6	119	3.8
(ac)	Prog. & Teach LOGO	13	4.8	140	4.5
(ad)	Prog. & Teach Pascal	1	.4	5	.2
(ae)	Learn/Teach Word Proc.	7	2.6	130	4.2
(bc)	Learn/Teach Data Base	1	.4	20	.6
(bd)	Integrate Software	36	13.2	480	15.5
(be)	Select Software	17	6.3	258	8.3
(cd)	Teach Comp. Literacy	23	8.5	263	8.5
(ce)	Use Comp. to Man. Inst.	8	2.9	77	2.5
(de)	Use Comp. to Gen. Wksh.	11	4.0	70	2.3
(abc)	Use Comp. for Remediation	38	14.0	362	11.7
(abd)	Use Comp. for Enrichment	48	17.6	436	14.1
(abe)	Use Comp. to Ext. Cont.	38	14.0	319	10.3
(bcd)	Use Comp. Recordkeeping	3	1.1	66	2.1
(bce)	Use Comp. w/Spec. Students	3	1.1	57	1.8